**PATENT**
**Customer Number 68368**
**Attorney Docket No. DOL11505US**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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| In re Application of: | |
| Mark Franklin DAVIS | Group Art Unit: 2626 |
| Application No.: 10/591,374 | Examiner: Borsetti, Greg |
| Filed: August 31, 2006 | Confirmation No.: 8002 |
| For: MULTICHANNEL AUDIO CODING | |

# REPLY BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir,

The following reply brief is submitted pursuant to the Examiner's Answer filed on 4 August 2011 for the above-identified application.

ARGUMENT

## I. Summary of Arguments

As more fully discussed in the Appeal Brief, each of the grounds of rejection before the Board is erroneous and should be reversed. Dolby hereby incorporates by reference all arguments made in the Appeal Brief, which will be repeated herein only to the extent necessary to address new arguments made in the Examiner's Answer.[1] Certain errors made by the Examiner alone would justify the reversal of all rejections and obviate the need for the Board to assess Dolby's additional arguments.

All of the pending rejections[2] should be rejected because the Examiner misunderstands the primary reference, Faller. Faller does not teach or suggest certain limitations of independent claim 63, which by virtue of dependency or incorporation are present in each of claims 63-74. In particular, Faller fails to teach or suggest at least the following limitations present in each of the pending claims:

> (1) at least one of said N audio signals is a correlated signal derived from a weighted combination of at least two of said M encoded audio channels;
>
> (2) said set of spatial parameters includes a first parameter indicative of the amount of an uncorrelated signal to mix with a correlated signal; and

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[1] Dolby notes that the rejections stated in the Answer at pages 5-12 are identical to those in the Final Rejection dated 23 August 2010, all of which are fully addressed in the Appeal Brief. Dolby therefore will focus on the Examiner's "Response to Argument" beginning on Page 12 of the Examiner's Answer.

[2] Dolby notes that the Examiner has withdrawn the rejections pursuant to 35 U.S.C. § 101. *See* Answer at 4. Therefore, these rejections are no longer before the Board and will not be addressed in this Reply Brief.

(3) step c) includes deriving at least one uncorrelated signal from said at least one correlated signal, and controlling the proportion of said at least one correlated signal to said at least one uncorrelated signal in at least one channel of said multichannel output signal in response to one or ones of said spatial parameters, wherein said controlling is at least partly in accordance with said first parameter.

The Examiner fails to point to anything in any of the secondary references (Baumgarte, Broadie, or MPEP 2144.03) that remedies these deficiencies of Faller, and the Examiner fails to provide any justification for why it would have been obvious for one of ordinary skill in the art to modify the asserted combinations of references to include the missing limitations. The rejections of (1) claims 63-67, 70-71, and 74 under 35 U.S.C. § 102(a) as allegedly anticipated by Faller; (2) claims 68-69 and 73 under 35 U.S.C. § 103(a) as allegedly unpatentable over Faller in view of Baumgarte in view of Broadie; and (3) claim 72 under 35 U.S.C. § 103(a) as allegedly unpatentable over Faller in view of MPEP 2144.03 therefore should be reversed.

The foregoing reasons alone provide sufficient bases to reverse all of the pending rejections, and no further analysis by the Board should be necessary to reverse all rejections. Additional arguments are provided in Sections III-V below for completeness and to preserve the arguments for further appeal, should that become necessary, but need not be considered by the Board to reverse all rejections in light of the above arguments. In particular, Section III explains why Faller also fails to teach certain additional limitations present in certain dependent claims subject to the above rejection under 35 U.S.C. § 102(a). Section IV provides additional reasons why the rejection of claims 68-

69 and 73 under 35 U.S.C. § 103(a) as allegedly unpatentable over Faller in view of Baumgarte in view of Broadie should be reversed; specifically that the combination of Faller, Baumgarte, and Broadie does not disclose or suggest all of the limitations of any of claims 68-69 and 73, and the Examiner has not provided a rational underpinning for the asserted combination of Faller, Baumgarte, and Broadie. Section V provides additional reasons why the rejection of claim 72 under 35 U.S.C. § 103(a) as allegedly unpatentable over Faller in view of MPEP 2144.03 should be reversed; specifically that the combination of Faller in view of MPEP 2144.03 does not disclose or suggest all of the limitations of claim 72, the Examiner has improperly relied on MPEP 2144.03, and the Examiner has not provided a rational underpinning for the asserted combination of Faller in view of MPEP 2144.03.

For the foregoing reasons, all of the rejections of the pending claims should be reversed and remanded to the Examiner so that a Notice of Allowance may promptly be issued with respect to claims 63-74.

## II. All of the Pending Rejections Should be Reversed Because the Examiner has Misunderstood the Teachings of the Primary Reference, Faller.

As discussed in Section III of the Appeal Brief, each of the Examiner's rejections under 35 U.S.C. §§ 102 and 103[3] is erroneous and should be reversed because, contrary to the Examiner's assertions, the primary reference, Faller, does not teach or suggest certain limitations of independent claim 63, which by virtue of dependency or incorporation are present in each of claims 63-74. In particular, Faller fails to teach or

[3] These rejections include rejections B-D listed in the Grounds of Rejection to be Reviewed on Appeal in the Appeal Brief.

suggest at least the following limitations present in each of the pending claims: (1) at least one of said N audio signals is a correlated signal derived from a weighted combination of at least two of said M encoded audio channels; (2) said set of spatial parameters includes a first parameter indicative of the amount of an uncorrelated signal to mix with a correlated signal; and (3) step c) includes deriving at least one uncorrelated signal from said at least one correlated signal, and controlling the proportion of said at least one correlated signal to said at least one uncorrelated signal in at least one channel of said multichannel output signal in response to one or ones of said spatial parameters, wherein said controlling is at least partly in accordance with said first parameter. The absence of teaching or suggestion of just one of these limitations would be fatal to all of the pending rejections; the asserted art teaches none of these three limitations.

With respect to limitation (1) above, the Examiner disagrees with Dolby's arguments at pages 29-30 of the Appeal Brief and asserts that "[t]he inter-channel correlation is the (uncorrelated) parameter (from the side information, see Faller, Fig. 1) that decorrelates the sum signal (the correlated signal, see Faller, Fig. 1) at the BCC decoder to produce diffuseness in the decoded audio signal (Faller, Page 530, column 1)." Answer at 13-14. However, Figure 1 of Faller merely shows a "Generic BCC" scheme that shows a BCC Encoder and a BCC Decoder. Faller neither teaches nor suggests limitation (1) "at least one of said N audio signals is a correlated signal derived from a weighted combination of at least two of said M encoded audio channels." In fact, the Examiner does not even directly address the actual claim limitation at issue. The Examiner provides no explanation how the alleged teaching of Faller of the inter-channel correlation that decorrelates the sum signal at the BCC decoder to produce diffuseness in

the decoded audio signal to produce diffuseness in the decoded audio signal, even if true, teaches or suggests limitation (1) above. *Decorrelating* the sum signal at the BCC decoder has nothing to do with generating a *correlated* signal which is derived from a weighted combination of at least two of the M encoded audio channels. Neither the cited passage nor any other portion of Faller teaches or suggests limitation (1) as required by each of the currently pending claims.

With respect to limitation (2) above, the Examiner disagrees with Dolby's arguments at pages 30-31 of the Appeal Brief and asserts that

> Faller acknowledges that the BCC synthesis uses the BCC side information to generate the output multichannel audio signal by providing BCC synthesis. The BCC side information has been defined to include the parameters as shown in Faller, Page 231, section II. The Examiner further directs applicant to Page 526, section IV, B. BCC for Natural Rendering which teaches how the side information is coded to include the ICLD, ICTD, and ICC parameters. As is described above and Faller, Page 521, the ICC parameters keep track of the correlation between the channels (inter-channel correlation) and is used for determining the width (or diffuseness) of a rendered source (Faller, Page 522, column 1). Therefore, the ICC parameters (through time) is part of a side signal that is uncorrelated with the sum signal (the correlated signal). For the purposes of BCC synthesis, the estimated inter-channel cues (BCC side parameters including the ICC parameter restoring diffuseness) are directly used to generate the output multichannel audio signal by applying BCC synthesis (Faller, Page 526, column 1, bullet 2).

Answer at 14-15.

The Examiner thus argues that "the ICC parameters keep track of the correlation between channels," but again does not directly address the actual claim limitation at issue, "said set of spatial parameters includes a first parameter indicative of the amount of an uncorrelated signal to mix with a correlated signal." The Examiner does not, and could not, point to any teaching or suggestion in Faller of mixing an uncorrelated signal

with a correlated signal or a first parameter indicative of the amount of the uncorrelated signal to mix with the correlated signal. Neither (a) keeping track of the correlation between channels nor (b) using estimated inter-channel cues to generate the output multichannel audio signal by applying BCC synthesis as allegedly taught by Faller is the same as including a first parameter indicative of the amount of an uncorrelated signal to mix with a correlated signal. Contrary to the Examiner's conclusions, Faller makes no mention of mixing correlated and uncorrelated signals much less a parameter indicative of the amount of an uncorrelated signal to mix with a correlated signal. Faller therefore does not teach or suggest limitation (2) above.

With respect to limitation (3) above, the Examiner disagrees with Dolby's arguments at page 31 of the Appeal Brief and asserts that

> As is described above in section 4, there is a) a derivation of an uncorrelated signal in the side parameters generated at the BCC analysis at the encoder, and b) the ICC parameter is used (at the decoder) to determine the inter-channel correlation to be mixed between the side information (uncorrelated signal) and the sum signal (correlated signal) to restore the diffuseness (deriving at least one uncorrelated signal) of the sound between the multichannel output. Note the difference between the spatial parameters have a parameter indicative of the amount of an uncorrelated signal and the derivation of at least one uncorrelated signal. The spatial parameters are uncorrelated as compared to the sum (correlated) signal but the derivation of at least one uncorrelated signal is directed to the output that is spatially diffuse.

Answer at 15-16. The Examiner points to the above arguments with respect to limitation (2), which as described above are fundamentally flawed and do not address the actual claim limitation (2). Moreover, the Examiner provides no citation to Faller in support of the above statements addressed to limitation (3), none of which are supported by the his prior arguments with respect to limitation (2).

Contrary to the Examiner's new assertions, there is nothing in Faller to teach or suggest mixing the inter-channel correlation between the side information and the sum signal to restore the diffuseness. In fact, Faller teaches merely that some recordings have a high amount of uncorrelated reverberation and that the ICC parameter can be used to restore diffuse reverb. *See* Faller, p. 530, col. 1. Moreover, as shown in Figure 5 and described in Section II.B of Faller, a weighting factor is applied to each subband of the mono input signal to generate each output signal. The weighting factors are determined from the spatial parameters (ICLD, ICTD, and ICC). No uncorrelated signal is ever derived, and the output is not a combination of correlated and uncorrelated signals controlled in response to the spatial parameter. Thus, Faller neither teaches nor suggests (a) deriving an uncorrelated signal from the correlated signal; or (b) controlling the proportion of said at least one correlated signal to said at least one uncorrelated signal in at least one channel of said multichannel output signal in response to one or ones of said spatial parameters. The absence of either of these limitations is fatal to the Examiner's rejections – and Faller teaches or suggests *neither* of the two limitations.

The Examiner thus has failed to show where each of the above limitations of claim 63 is disclosed, either explicitly or inherently, in Faller. Each of claims 64-67 and 70-71 depends from independent claim 63 and includes limitations (1) - (3) above that are missing from Faller. Claim 74 is directed to "[a]n apparatus comprising means adapted to carry out each of the steps of any one of the methods of claims 63-73," and therefore includes means adapted to carry out the limitations from claim 63 that are shown above to be missing from Faller. For at least the above reasons, the rejection of claims 63-67,

70-71, and 74 under 35 U.S.C. § 102(a) as allegedly anticipated by Faller should be reversed.

The rejections of (a) claims 68-69 and 73 under 35 U.S.C. § 103(a) as allegedly unpatentable over Faller in view of Baumgarte in view of Broadie; and (b) claim 72 under 35 U.S.C. § 103(a) as allegedly unpatentable over Faller in view of MPEP 2144.03 are equally deficient for the reasons above and those stated in Section III of the Appeal Brief and should be reversed.

Dolby submits that the foregoing reasons alone provide sufficient bases to reverse all of the pending rejections, and that no further analysis by the Board should be necessary to reverse all rejections. The additional arguments in the following sections and in corresponding Sections IV-VI of the Appeal Brief are provided for completeness and to preserve the arguments for further appeal, should that become necessary, but need not be considered by the Board to reverse all pending rejections in light of the above arguments. Dolby therefore respectfully requests that all rejections be reversed and the case be remanded so that a Notice of Allowance may promptly be issued for claims 63-74.

## III. The Rejection of Claims 63-67, 70-71, and 74 under 35 U.S.C. § 102(a) as Allegedly Anticipated by Faller Should be Reversed Because Faller Does Not Teach All of the Limitations Recited in Any of Claims 63-67, 70-71, and 74.

As discussed in Section III above and in Section IV of the Appeal Brief, Faller does not disclose, either explicitly or inherently, certain limitations present in each of claims 63-67, 70-71, and 74. For those reasons alone, Faller does not anticipate claims 63-67, 70-71, and 74 and the rejection of those claims under 35 U.S.C. § 102 should be

reversed. Faller also fails to disclose certain limitations of the dependent claims, which provides additional independent reasons for reversing the anticipation rejection of those claims.

### A. Claim 64-66

With respect to claim 64, the Examiner disagrees with Dolby's arguments on page 34 of the Appeal Brief that Faller does not teach the additional limitation of claim 64 "step c) includes deriving said at least one uncorrelated signal by applying an artificial reverberation filter to said at least one correlated signal." Answer at 16-17. The Examiner now asserts:

> Head related transfer functions are used as an alternative to synthesizing ICLD's and ICTD's where a local table in the BCC synthesizer stores an HRTF frequency response for obtaining the binaural signals (Faller, Page 525, column 1). The inter-channel time difference (ICTD) parameters are used to denote the delay between the channels which causes reverberation (reverberation is caused by the receipt of two similar signals where one has a delay) when reapplied at the BCC synthesis. However, the head-related transfer functions are additionally used to synthesize binaural signals instead of the ICTD parameter but having a similar effect. Therefore, the HRTF's cause a reverberation effect by alternatively synthesizing the binaural signals (as opposed to the direct ICLD and ICTD synthesis). The Examiner considers the HRTF filter having a reverberation effect to be a reasonable interpretation of an artificial reverberation filter. Lastly, the HRTF is applied to the spectral coefficients of the (correlated) sum signal to synthesize the decorrelated (uncorrelated signal) output having spatial information reinserted.

Answer at 17.

The Examiner provides no citation in Faller for his discussion of reverberation after the first sentence above. In fact, none of the discussion of reverberation above actually appears in Faller, which makes no mention of reverberation caused by the HRTFs or of artificial reverberation filters. The Examiner provides no explanation for

why the head-related transfer functions meet this claim limitation nor how they are allegedly used to synthesize binaural signals *including uncorrelated signals*. Moroever, as discussed in Section II above, Faller does not disclose, explicitly or inherently, deriving an least one uncorrelated signal from said at least one correlated signal. Faller therefore necessarily also does not teach deriving that same uncorrelated signal by applying an artificial reverberation filter to said at least one correlated signal. Claims 65-66 depend from claim 64 and therefore also include this missing limitation. For at least these additional reasons, the rejection of claim 64-66[4] under 35 U.S.C. § 102 as allegedly anticipated by Faller should be reversed.

**B. Claim 67**

Claim 67 depends from claim 63 and therefore includes each of the limitations of claim 63 that are shown in Section II above not to be taught, explicitly or inherently, by Faller. For those reasons alone, claim 67 is not anticipated by Faller.

The Examiner disagrees with Dolby's arguments at pages 35-36 of the Appeal Brief regarding the additional claim limitation of claim 67 that "wherein said controlling in step c) includes deriving a separate proportion of said at least one correlated signal to said at least one uncorrelated signal for each of a said plurality of frequency bands, at least partly in accordance with said first parameter." The Examiner now asserts

> Faller, Page 524, column 2, section A, teaches that the interchannel cues are synthesized from the source indices in each partition at each time. The inter-channel cues being ICC, ICLD, ICTD parameters. At section 2, the decoder processing has, for each partition, the inter-channel cues obtained from a local table which stores one set of inter-channel cues for each

[4] Dolby incorporates by reference the arguments regarding the separate patentability of claims 65 and 66 asserted at Sections IV.B and C of the Appeal Brief.

> source. For each partition the cues are chosen according to the source index and synthesized using BCC synthesis. The cited section of Faller in the Office action refers to the HRTF filters deriving a separate portion of at least one correlated signal to said at least on uncorrelated signal (alternatively synthesizes the ICLD and ICTD parameters for each partition, note the partitions are in frequency, see Fig. 7) for the flexible rendering, which includes the ICC parameters. The ICC parameters are still used to restore diffusion in combination with the other parameters, so the ICC synthesis (first parameter) is at least partly in accordance with the HRTF alternative synthesis of the ICLD and ICTD parameters for each partition to ultimately provide multichannel diffuse audio.
>
> . . .
>
> Refer to above response 10, The cited section of Faller in the Office action refers to the HRTF filters deriving a separate portion of at least one correlated signal to said at least on uncorrelated signal (alternatively synthesizes the ICLD and ICTD parameters for each partition, note the partitions are in frequency, see Fig. 7) for the flexible rendering, which includes the ICC parameters. The ICC parameters are still used to restore diffusion in combination with the other parameters, so the ICC synthesis (first parameter) is at least partly in accordance with the HRTF alternative synthesis of the ICLD and ICTD parameters for each partition to ultimately provide multichannel diffuse audio.

Answer at 19-20. Dolby addressed the cited section of Faller in the Office Action in the Appeal Brief, pointing out that the Examiner provides no explanation as to how applying different HRTFs in different partitions explicitly or inherently teaches deriving a separate proportion of said at least one correlated signal to said at least one uncorrelated signal for each of a said plurality of frequency bands, at least partly in accordance with said first parameter as claimed. Nothing in the above arguments remedies that deficiency.

The Examiner now argues that Faller "alternatively synthesizes the ICLD and ICTD parameters for each partition, note the partitions are in frequency, see Fig. 7." *Id.* However, the Examiner again fails to explain how this alleged teaching of Faller explicitly or inherently teaches deriving a separate proportion of said at least one

correlated signal to said at least one uncorrelated signal for each of a said plurality of frequency bands, at least partly in accordance with said first parameter as claimed.

In fact, as discussed more fully in Section II above, Faller makes no mention of controlling the proportion of said at least one correlated signal to said at least one uncorrelated signal in at least one channel of said multichannel output signal in response to one or ones of said spatial parameters, wherein said controlling is at least partly in accordance with said first parameter as required by claim 63. Necessarily, Faller also does not teach, explicitly or inherently, deriving a separate proportion of the correlated signal to the uncorrelated signal as further required by claim 67. For at least these additional reasons, the rejection of claim 67 under 35 U.S.C. § 102 as allegedly anticipated by Faller should be reversed.

**C. Claim 74**

Claim 74 is directed to "[a]n apparatus comprising means adapted to carry out each of the steps of any one of the methods of claims 63-73," and therefore includes means adapted to carry out the limitations from claim 63 that are shown above to be missing from Faller. The Examiner has provided no explanation of where the claimed means are taught or suggested by Faller. Thus, the Examiner has failed to establish a *prima facie* case of anticipation of claim 74 over Faller. For at least the above reasons, the rejection of claim 74 under 35 U.S.C. § 102(a) as allegedly anticipated by Faller should be reversed.

## IV. The Rejection of Claims 68-69 and 73 Pursuant to 35 U.S.C. § 103(a) Based on the Combination of Faller in view of Baumgarte in view of Broadie Should be Reversed Because Those Claims are not Obvious over the Asserted Combination of References.

This rejection should be reversed, because, as explained in detail below and in Section V of the Appeal Brief, the combination of Faller, Baumgarte, and Broadie does not disclose or suggest all of the limitations of any of claims 68-69 and 73 and the Examiner has not provided a rational underpinning for the asserted combination of Faller, Baumgarte, and Broadie.

### A. Claims 68-69 and 73 are not rendered obvious by the combination of Faller in view of Baumgarte in view of Broadie at least because the asserted combination does not teach, suggest, or render obvious all of the limitations recited in each of those claims.

As discussed in Section II above, the combination of Faller in view of Baumgarte in view of Broadie fails to disclose certain limitations present in each of claims 68-69 and 73. For those reasons alone, this rejection should be reversed. The Examiner erroneously asserts that the above arguments "fail to comply with 37 C.F.R. 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references." The Examiner is incorrect. The foregoing arguments incorporate the arguments from Section II above, which explain how the combination of Faller in view of Baumgarte in view of Broadie fails to teach or suggest limitations (1) – (3) above that are present by virtue of dependency in claims 68-69 and 73 and are fully compliant with 37 C.F.R. § 1.111(b).

**B. Claims 68-69 and 73 are not obvious over Faller in view of Baumgarte in view of Broadie at least because the Examiner has failed to provide a rational underpinning for the asserted combination of references.**

Dolby provided a detailed explanation at pages 38-41 of the Appeal Brief as to why the Examiner's justification for combining Baumgarte and Broadie with Faller to overcome the admitted deficiencies of Faller (a) fails to provide sufficient rational underpinning for the asserted combination and (b) provides an additional independent basis for reversing the rejection of claims 68-69 and 73 under 35 U.S.C. § 102 as allegedly unpatentable over Faller in view of Baumgarte in view of Broadie. The Examiner's Answer fails to overcome the deficiencies of the original, and now restated, rejection. *See* Answer at 21-24.

In particular, Dolby argued that

> The Examiner also fails to explain *why* one of ordinary skill in the art would have been motivated to add the alleged dematrixing of Broadie other than "to provide the predictable result of a stereo signal." But the Examiner cites Baumgarte, figure 1 (120), ¶0027, as teaching stereo decoding that produces L and R channels and side information that further provides high frequency information. Final Office Action at 9. If the combination of Faller and Baumgarte already teaches a stereo signal, as alleged by the Examiner, the fact that adding the alleged dematrixing of Broadie leads to a predictable result of a stereo signal provides no rational underpinning to add the third reference to the first two. One of ordinary skill in the art does not need to add the teachings of a third reference to accomplish a result that is allegedly already taught by the combination of the first two references.

Appeal Brief at 38-39. The Examiner does not refute this argument, instead conceding the fact that "Baumgarte (¶0027) fully acknowledges stereo audio decoder 114 as standard." Answer at 21. The Examiner states that

> Therefore, providing the dematrixing to replace the conventional decoder 114 would have been obvious to someone of ordinary skill in the art at the time the invention was made because both were well known at the time of

> the invention and would have provided the predictable result of a stereo audio signal.

*Id.* at 21-22. However, the Examiner still provides no explanation why one of ordinary skill in the art would have been motivated to add the alleged teaching of Broadie to the combination of Faller and Baumgarte to provide a predictable result ("a stereo audio signal") that the Examiner concedes and even stresses is present before the alleged teachings of Broadie are added. The Examiner thus has failed to address Dolby's argument that one of ordinary skill in the art does not need to add the teachings of a third reference to accomplish a result that is allegedly already taught by the combination of the first two references. The Examiner thus provides no rational underpinning for why one of ordinary skill in the art would choose to modify the method of Faller to include the specific content of Baumgarte and Broadie.

Moreover, the Examiner also provides no substantive rebuttal to Dolby's argument that the only teaching for modifying Faller to include deriving said N audio signals from said M encoded audio channels by a process that includes dematrixing said M encoded channels, as required by claims 68 and 69, exists in the present application, which the Examiner cannot use as a roadmap to string multiple references together to find all of the claim limitations of the present invention without relying on impermissible hindsight. The Examiner states that "any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning." *Id.* at 22. The Examiner cites *In re McLaughlin* for the premise that "so long as it takes into account only knowledge which was within the level of ordinary skill at the time the invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such

a reconstruction is proper." *Id*. at 22-23. However, the Examiner merely cites the law without applying it to the facts of the instant case or explaining what knowledge within the level of ordinary skill at the time the invention was made and not from Dolby's disclosure supports the combination.

As stated above, the Examiner's argument regarding the predictable result of a stereo audio signal is fundamentally flawed and provides no rational underpinning for the combination of Broadie with the combination of Faller and Baumgarte. Without other support, the only teaching to modify the combination of Faller and Baumgarte exists in the present application, and the Examiner's combination rests only on improper hindsight reconstruction based on Dolby's disclosure. Because there is thus no rational underpinning to combine Baumgarte and Broadie with Faller as suggested by the Examiner, the combination of Faller in view of Baumgarte in view of Broadie lacks rational underpinning, and the rejection should be reversed.

For the above reasons and for the reasons stated in Section V of the Appeal Brief, the Examiner's proposed justification for combining Faller, Baumgarte, and Broadie constitutes impermissible hindsight reconstruction, and cannot support a *prima facie* showing of obviousness. For all of these independent reasons, the rejection of claims 68-69 and 73 under 35 U.S.C. § 103(a) as allegedly unpatentable over Faller in view of Baumgarte in view of Broadie should be reversed.

## V. The Rejection of Claim 72 Pursuant to 35 U.S.C. § 103(a) As Allegedly Unpatentable over Faller in View of MPEP 2144.03 Should be Reversed Because Those Claims, as Amended, are not Obvious over the Asserted Combination of References.

This rejection should be reversed, because, as explained in detail below, the combination of Faller in view of MPEP 2144.03 does not disclose or suggest all of the limitations of claim 72 and the Examiner has not provided a rational underpinning for modification of Faller to include the missing limitations.

### A. Claim 72 is not obvious over Faller in view of MPEP 2144.03 at least because the combination of Faller and MPEP 2144.03 does not disclose or suggest that the multichannel output signal is in the frequency domain.

As discussed in Section II above, the combination of Faller in view of MPEP 2144.03 fails to disclose certain limitations present in claim 72. For those reasons alone, this rejection should be reversed.

Moreover, Dolby's arguments in Section VI.A of the Appeal Brief fully explain why the combination of Faller and MPEP 2144.03 fails to teach or suggest the additional limitation of claim 72 that "wherein said multichannel output signal is in the frequency domain." The Examiner's Answer does nothing to refute those arguments.

In particular, the Examiner states for the first time that

> The difference between the claimed limitation and what is disclosed in Fig. 5 is the inverse transform which puts the multichannel output back into the time domain. As was contended at the writing of the most recent Office action, spectral transformations (inverse transformations) were well known at the time the invention was made. . . it was of the opinion of the Examiner that the removal of the most expensive operation (Faller, Page 526, column 2, section V) to keep the coefficients in the frequency domain would have been obvious to someone of ordinary skill in the art at the time the invention was made because it requires no inventive ingenuity. It's simply a removal of one of the operations and would immediately result in reduced computational complexity. . . The Examiner maintains that the

> removal of the inverse transform would have been obvious to someone of ordinary skill in the art at the time the invention was made. Furthermore, someone of ordinary skill in the art would recognize that a reduction in computational complexity (factual finding) would clearly warrant such a consideration.

Answer at 25. As an initial matter, the only rationale for why one or ordinary skill in the art would have found it obvious to "remove the most expensive operation" is the Examiner's opinion, which is not a proper basis for a rational underpinning for an obviousness rejection.

Neither the cited portion of Faller nor any other part of the asserted references, provides any support for the Examiner's conclusion. In fact, Faller states that "[t]he complexity of the presented BCC implementation is reasonably low. The most demanding operations are the FFT and IFFT. [T]hese are of size 1024 for the specific parameters chosen (Section II-A)." Faller, p. 526, col. 2, section V. Contrary to the Examiner's conclusory statement, the cited portion of Faller not only does not suggest a need to reduce complexity, it explicitly states that the complexity of the disclosed BCC implementation is "reasonably low" and provides no rational underpinning to drive those of ordinary skill in the art to seek further reductions in complexity. Faller does state that the most demanding operations are the FFT and IFFT, *id*., but does not suggest removing the IFFT to reduce complexity as suggested by the Examiner. The Examiner also provides no explanation why one of ordinary skill in the art would not also have been motivated to remove the FFT, which is listed as the other of the "most demanding operations." If both the FFT and IFFT were removed the multichannel output signal would not be in the frequency domain and the claim limitation would not be met. In fact, removing the IFFT alone, which is an integral part of the process shown in Figure 5 of

Faller, would fundamentally change the disclosed BCC implementation. The Examiner provides no explanation for how or why one or ordinary skill in the art would have made the suggested modification of Faller to achieve the claim limitation that "wherein said multichannel output signal is in the frequency domain."

The Examiner offers an additional rationale for the first time and without citation to any specific teachings or suggests in any of the asserted references. Specifically, the Examiner now makes the conclusory statement that "upon further consideration by the Examiner, Faller provides a multichannel output signal in the time domain and the frequency domain. It first outputs the multichannel output in the frequency domain, then converts it to the time domain under the broadest reasonable interpretation." Answer at 25-26. However, as described more fully in section VI.A of the Appeal Brief and as the Examiner previously conceded, Faller does not specifically teach "wherein said multichannel output signal is in the frequency domain," *see* Final Office Action at 11, and instead teaches that the multichannel output is the output of the inverse transform, which is necessarily in the time domain. Faller, Figure 5 and page 523, column 1. The Examiner's alternate positions are in fact mutually exclusive. Either the inverse transform has to be removed to create a multichannel output signal in the frequency domain or it doesn't. The Examiner cannot have it both ways and in either case, as described above and in Section VI.A of the Appeal Brief, Faller does not teach a multichannel output signal in the frequency domain

The reasons provided in Section VI.A of the Appeal Brief for why MPEP 2144.03 does not salvage the Examiner's erroneous analysis apply with equal force to the additional logic presented in the Examiner's Answer. Without a specific assertion of

common knowledge of particular facts or particular reference to any "well known" prior art as required by MPEP 2144.03, the Examiner has failed to state a prima facie case of obviousness of claim 72 over Faller in view of MPEP 2144.03. Such an assertion would be inappropriate in this instance, because the primary reference teaches the opposite of what the additional limitation of claim 72 requires. For the reasons stated in Section VI.A in the Appeal Brief and for the additional independent reasons above, the rejection of claim 72 under 35 U.S.C. § 103(a) should be reversed.

**B. Claim 72 is not obvious over Faller in view of MPEP 2144.03 at least because the Examiner has failed to provide a rational underpinning for modifying Faller to include the limitation that the Examiner concedes in not specifically taught by Faller.**

Dolby previously explained in Section VI.B of the Appeal Brief why the Examiner has failed to provide sufficient rational underpinning to support the obviousness rejection of claim 72 as allegedly unpatentable over Faller in view of MPEP 2144.03. The Examiner's Answer provides no additional rational underpinning and, in fact undercuts the logic previously presented in the Final Office Action. As explained in Section V.A above, Faller does not teach or suggest removing the inverse transform to reduce complexity and in fact suggests that such a removal is not necessary as the complexity of the disclosed BCC implementation is "reasonably low." The Examiner asserts that Dolby has failed to argue why it would not have been obvious to eliminate the inverse transform for the reason described in the office action. Answer at 26. The Examiner is incorrect, as Dolby has provided ample reasoning in Section VI of the Appeal Brief and Section V.A above.

In addition, the Examiner now argues for the first time that

> someone of ordinary skill in the art at the time of invention would have been motivated to remove the inverse transform in the base decoder to reduce complexity and reserve the inverse transform to a point later in the process after further processing, possibly including further upmixing or post-processing.

Answer at 27. However, the Examiner provides no explanation why "reserv[ing] the inverse transform to a point later in the process" would in any way reduce complexity—the only rationale previously provided by the Examiner for the proposed modifications to Faller. This unsupported and conclusory assertion further supports Dolby's argument that the only teaching for modifying Faller such that said multichannel output signal is in the frequency domain, as required by claim 72, exists in the present application, which the Examiner cannot use as a roadmap to string multiple references together to find all of the claim limitations of the present invention without relying on impermissible hindsight. The Examiner also provides no explanation, without resort to impermissible hindsight to the instant application, why one of ordinary skill in the art would not also have been motivated to remove the FFT, which is listed as the other of the "most demanding operations." If both the FFT and IFFT were removed the multichannel output signal would not be in the frequency domain and the claim limitation would not be met. Only impermissible hindsight to the present application would lead one of skill in the art to remove one but not both of the "most demanding operations." Because there is thus no rational underpinning to modify Faller as suggested by the Examiner, the combination of Faller in view of MPEP 2144.03 lacks rational underpinning, and the rejection should be reversed.

In summary, the Examiner's proposed justification for combining Faller and MPEP 2144.03 constitutes impermissible hindsight reconstruction, and cannot support

a *prima facie* showing of obviousness. *See* MPEP § 2142. For all of the reasons stated in Section VI of the Appeal Brief and the additional independent reasons discussed herein, the rejection of claim 72 should be reversed.

## CONCLUSION

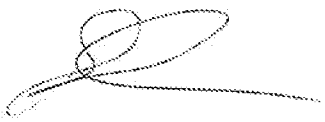
For the foregoing reasons, Dolby hereby respectfully requests that the final rejection of claims 63-74 be reversed.

If there is any fee due in connection with the filing of this Appeal Brief, please charge the fee to U.S.P.T.O. Deposit Account No. 50-4119. Moreover, should this deposit account contain insufficient funds, the Commissioner is hereby invited to contact Dolby's undersigned representative to arrange payment.

Dated: September 28, 2011

Respectfully submitted,

BARCELÓ, HARRISON & WALKER, LLP



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